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Total Number of Pages in This Submission

75

Application Number

10/782,075

Filing Date

02/19/2004

First Named Inventor

Sean D. Monahan

Art Unit

Examiner Name

Attorney Docket Number

Mirus.030.16.6

ENCLOSURES (Check all that apply)

☐

Fee Transmittal Form

☐

Fee Attached

☐

Amendment/Reply

☐

After Final

☐

Affidavits/declaration(s)

☐

Extension of Time Request

☐

Express Abandonment Request

☒

Information Disclosure Statement

☐

Certified Copy of Priority Document(s)

☐

Response to Missing Parts/
Incomplete Application

☐

Response to Missing Parts
under 37 CFR 1.52 or 1.53

☐

Drawing(s)

☐

Licensing-related Papers

☐

Petition

☐

Petition to Convert to a
Provisional Application

☐

Power of Attorney, Revocation

☐

Change of Correspondence Address

☐

Terminal Disclaimer

☐

Request for Refund

☐

CD, Number of CD(s) _____

☐

After Allowance communication
to Group

☐

Appeal Communication to Board
of Appeals and Interferences

☐

Appeal Communication to Group
(Appeal Notice, Brief, Reply Brief)

☐

Proprietary Information

☐

Status Letter

☐

Other Enclosure(s) (please
Identify below):

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm
or
Individual name

Mark K. Johnson

Signature

Mark K. Johnson

Date

01/05/2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: **Sean D. Monahan,**)
Vladimir G. Budker, Lisa Nader,)
Vladimir Subbotin, Jon A. Wolff)
)
Serial No.: **10/782,075**)
)
Filed: **02/19/2004**)
)
Group Art Unit:)

For: **Covalent Modification of RNA for *In Vitro* and *In Vivo* Delivery**

INFORMATIONAL STATEMENT

Commissioner of Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. 1.56, applicant hereby calls to the attention of the Patent and Trademark Office the publications listed on the attached PTO 1449. This information statement supplements the previously filed information statement.

US patent

<u>Patent No.</u>	<u>Applicant</u>	<u>Issue date</u>
6,617,438	Beigelmann et al	09/09/2003
5,817,635	Eckstein et al.	10/06/1998

US Pre-Grant Publications

<u>Publication No.</u>	<u>Applicant</u>	<u>Issue date</u>
20030165969	Usman et al.	09/04/2003
20040192626	McSwiggen et al.	09/30/2004
20030166896	Usman et al.	09/04/2003
20020193579	Usman et al.	12/19/2002

International Publications


<u>Patent No.</u>	<u>Applicant</u>	<u>Issue date</u>
WO 92/07065	Pieken et al.	04/30/1992

REFERENCES CITED


1. Beigelman et al. "Chemical Modification of Hammerhead Ribozymes," The Journal of Biological Chemistry 1995 Vol. 270 No. 43 pp. 25702-25708.
2. Burlina et al. "Chemical Engineering of Rnase Resistant and Catalytically Active Hammerhead Ribozymes," Bioorganic & Medicinal Chemistry 5:1999-2010 (1997).
3. Perreault et al. "Mixed deoxyribo- and ribo- oligonucleotides with catalytic activity," Nature 344:565-567 (1990).
4. Pieken et al. "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," Science 253:314-317 (1991).
5. Sproat BS "Chemistry and application of oligonucleotide analogues." Journal of Biotechnology 1995 Vol 41 No. 2-3 pp. 221-238.
6. Sproat BS et al. "Fast and simple purification of chemically modified hammerhead robizymes using lipophilic capture tag." Nucleic Acids Research 1999 Vol 27 No. 8 pp. 1950-1955.
7. Usman N et al. "Nuclease-resistant synthetic ribozymes: developing a new class of therapeutics." Nucleic Acid Therapeutics 2000 Vol. 106 No. 10 pp. 1197-1202.
8. Limbach PA et al. "Summary: the modified nucleosides of RNA," Nucleic Acids Research 1994 Vol. 22 No. 12 pp. 2183-2196.

Applicant respectfully requests that these publications be expressly considered during the prosecution of this application and made of record herein and appear among the 'References Cited' on any patent to issue herefrom.

Respectfully submitted,

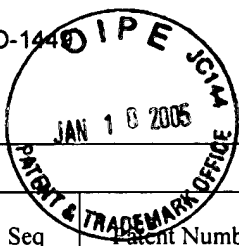


Mark K. Johnson Reg. No. 35,909
P.O. Box 510644
New Berlin, WI 53151-0644
(414) 821-5690

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Kirk Ekena

INFORMATION DISCLOSURE STATEMENT BY APPLICANT FORM PTO-1449	Attorney Docket No.: Mirus.030.16.6	Serial No.: 10/782,075
	Applicant: Sean D. Monahan, Vladimir G. Budker, Lisa Nader, Vladimir Subbotin, Jon A. Wolff	Group:
	Examiner:	



U.S. PATENT DOCUMENTS

Exmnr Intl	Seq	Patent Number	Issue Date	Patentee	Class	Sub Class	Filing Date
		6,617,438	09/09/2003	Beigelmann et al	536	23.1	12/30/1999
		5,817,635	10/06/1998	Eckstein et al.	514	44	05/04/1995
		<u>Publication No.</u>	<u>Pub. Date</u>				
		20030165969	09/04/2003	Usman et al.	435	6	03/17/2003
		20040192626	09/30/2004	McSwiggen et al.	514	44	05/23/2003
		20030166896	09/04/2003	Usman et al.	536	23.1	06/13/2002
		20020193579	12/19/2002	Usman et al.	536	23.1	01/08/2002

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

		Publication Number	Publication Date	Country or Patent Office	Class	Sub Class	Transl.	
							yes	no
		WO 92/07065	04/30/1992					

OTHER DOCUMENTS (Including Author, Title, Date Pertinent Pages, etc.)

		Amarzguioui M et al. "Tolerance for mutation and chemical modifications in a siRNA." Nucleic Acid Res. 2003 Vol. 31 No. 2 pp. 589-595.
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		Hamada, M. "Effects on RNA Interference in Gene Expression (RNAi) in Cultured Mammalian Cells of Mismatches and the Introduction of Chemical Modifications at the 3'-Ends of siRNAs." Antisense and Nucleic Acid Drug Development 2002 Vol. 12 pp. 301-309.
		Hermanson GT. "Bioconjugate techniques." 1996 New York, Academic Press pp 128-129.
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		Mittal V "Improving the efficiency of RNA interference in mammals." Nature Review Genetics 2004 Vol. 5 No. 5 pp. 355-365.
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		Reddy JA et al. "Enhanced folate receptor mediated gene therapy using a novel pH-sensitive lipid formulation." J Control Release. 2000 Vol. 64 No. 1-3 pp. 27-37.
		Rozema DB et al. "Endosomolysis by masking of a membrane-active agent (EMMA) for cytoplasmic release of macromolecules." Bioconjug Chem. 2003 Vol. 14 No. 1 pp. 51-57.
		Zhang G et al. "High levels of foreign gene expression in hepatocytes after tail vein injections of naked plasmid DNA." Hum Gene Ther. 1999 Vol. 10 No. 10 pp. 1735-1737.

Examiner:	Date Considered:
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